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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,712	07/25/2003	Teruo Maeda	116672	1898

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OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER
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PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/626,712	<b>Applicant(s)</b> MAEDA ET AL.	
	<b>Examiner</b> Hai C. Pham	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 13-15 and 17-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claim 10 is withdrawn in view of the newly discovered reference to Miura (JP 2003-22542). Rejections based on the newly cited reference follow.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The following limitation “a light emitting device exposed to the outside” at line 8 appears to be ambiguous in that it is not known whether the light emitting device is entirely disposed outside of the optical box or the light beam emitted by the light emitting device exposes a recording medium located outside of the optical box,
- “the elastic member” at line 9 lacks antecedent basis.

Appropriate correction is required.

### ***Claim Objections***

4. Claim 5 is objected to because of the following informalities:

- Line 3, "an elastic member" should read --the elastic member-- since it is previously recited in the parent claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita (JP 6-67102) in view of Miura (JP 2003-22542).

Tomita discloses an optical scanning device comprising a semiconductor laser (1), a circuit board (5) on which the semiconductor laser is mounted, a deflector (polygon mirror 32) for deflecting a laser beam emitted from the semiconductor laser, an image forming optical system (scanning lenses 22 and 23) for forming an image on a photosensitive member (46) by the laser beam deflected by the deflector, and an optical box (7) having an attachment face (e.g., bottom face) to which the circuit board is attached (the drive circuit board 5 along with the holding assembly for holding the laser and the collimator lens 2 is attached to the bottom face of the optical box 7 via the screw 8 and the sets of pins 7a-b and slots), wherein an outgoing direction of the laser beam of the semiconductor laser is along the circuit board (the optical axis of the laser beam being parallel to the drive circuit board 5 and to the bottom face of the optical box 7), and

the optical axis of the semiconductor laser is adjusted by moving the circuit board along the attachment face (the optical box 7 is provided with pins 7a and 7b such that the holding assembly along with the drive circuit board 5 can be moved in the direction of the optical axis of the laser beam to thereby adjust the optical axis of the laser beam).

Tomita further teaches the semiconductor laser including a light emitting device having three leads and exposing the photosensitive located outside the optical box, but fails to teach the elastic member holding the lead frames.

Miura discloses a mounting mechanism including an elastic member (5) for fixing the lead frame of the semiconductor (2) to the base (4) (Abstract).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Tomita with the elastic member as taught by Miura for the purpose of fixing the lead frame of the semiconductor laser to the base.

Tomita further teaches:

- an optical axis adjustment in an optical axis direction of the laser beam and a main scanning direction is made by moving the circuit board along the attachment face (the holding assembly and thus the drive circuit board 5 are adjustly movable in the optical axis direction and main scanning direction),
- an optical axis adjustment of an outgoing angle in a plane including the main scanning direction of the laser beam is made by moving the circuit board along the attachment face (the outgoing angle of the laser beam being parallel to the main scanning plane),
- the deflector includes a rotary polygon mirror (46).

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita in view of Miura, as applied to claim 3 above, and further in view of Mogi (U.S. 5,490,158).

Tomita, as modified by Miura, discloses all the basic limitations of the claimed invention except for the laser having three leads, which are disposed within one plane, being disposed within a center portion in a direction of the circuit board, and at an end in a direction of the circuit board.

Mogi discloses an optical scanning device comprising a semiconductor laser (2), a circuit board on which the semiconductor laser is mounted (base member 8 supporting the driver IC 6 and the semiconductor laser 2), a deflector (polygon mirror 31) for deflecting a laser beam emitted from the semiconductor laser, an image forming optical system (scanning lens 32) for forming an image on a photosensitive member (not shown) by the laser beam deflected by the deflector, and an optical box (optical box 36) having an attachment face to which the circuit board is attached (the laser unit being attached to the mount base forming the optical box 36), wherein an outgoing direction of the laser beam of the semiconductor laser is along the circuit board (the optical axis L is parallel to the driver IC 6 and its mount base 8) (Fig. 3). Mogi further teaches the semiconductor laser having leads in one plane, the semiconductor laser being at the center portion of the circuit board and at an end in the direction of the circuit board (Fig. 3).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Tomita by providing the laser/circuit board unit as taught by Mogi. The motivation for doing so would have been to provide a compact and integral laser unit.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita in view of Miura, as applied to claim 1 above, and further in view Yanagisawa (JP 2000-249957).

Tomita, as modified by Miura, discloses all the basic limitations of the claimed invention except for the elastic member for elastically holding the semiconductor laser, and an angle member for making an adjustment of one direction of the optical axis of an outgoing beam from the semiconductor laser.

Yanagisawa discloses an optical scanner comprising a light source having a semiconductor laser (42) fixed to the holding member (46), which can be displaced by turning the adjusting screw (54) so as to perform aligning adjustment in the direction of the optical axis.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Tomita with the elastic holding member as taught by Yanagisawa for the purpose of adjusting the alignment of the laser unit in the optical axis direction.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita in view of Miura, as applied to claim 2 above, and further in view of Itabashi (U.S. 6,469,772).

Tomita, as modified by Miura, discloses all the basic limitations of the claimed invention except for the optical axis adjustment in a sub scanning direction of the laser beam is made by moving the semiconductor laser with respect to the circuit board.

Itabashi discloses a laser light source unit for an optical scanning device, wherein an angle adjusting device in the form of a wedge-like-shaped member (18), a flat-surfaced cam (19) or a screw (20) is provided for adjusting the angle of the optical axis of the laser beam with respect to the optical box (17) in the sub-scanning direction such that a deviation of the optical axis of the laser beam in the sub-scanning direction is corrected (Figs. 7A-7D) (col. 8, line 11 through col. 9, line 20).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Tomita with the angle adjusting device as taught by Itabashi for the purpose of adjusting the optical axis of the laser beam in the sub-scanning direction to correct for a deviation of the optical axis of the laser beam in the sub-scanning direction as suggested by Itabashi.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita in view of Miura and Yanagisawa, as applied to claim 5 above, and further in view of Mogi et al. (U.S. 6,992,690).

Tomita, as modified by Miura and Yanagisawa, discloses all the basic limitations of the claimed invention except for the two bosses for attaching the circuit board and screwing the circuit board to the bosses.

Mogi et al. ('690) discloses an optical scanning device comprising an optical box (8) provided with two bosses, one boss (11c) and the second one facing the circuit board (11a), which is fixed to the second boss of the optical box via screw (14) (Fig. 11B).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the optical box in the device of Tomita with the two



bosses as taught by Mogi et al. ('690) for the purpose of fixedly attached the circuit board to the optical box.

***Allowable Subject Matter***

11. Claims 13-15 and 17-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claim 13 is the inclusion of the limitation "the circuit board includes one face and a solder face, a concave for attaching the semiconductor laser is formed in the circuit board, and by soldering the three leads of the semiconductor laser housed in the concave to the solder face, the main scanning direction of the outgoing beam of the laser are made parallel with the one face of the circuit board", in combination with the features recited in the parent claim(s), which is not found taught by the prior art of record considered alone or in combination

The primary reason for the indication of the allowability of claim 14 is the inclusion of the limitation "the elastic member is plate shaped and includes, in its center, a pair of tongue pieces formed by bending and a pressing piece for sandwiching the lead frame of the semiconductor laser in cooperation with the tongue pieces" in combination with the features recited in the parent claim, which is not found taught by the prior art of record considered alone or in combination.

The primary reason for the indication of the allowability of claim is the inclusion of the limitation "the circuit board includes an attaching portion for an adjusting jig and

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attaching the adjusting jig to the attaching portion enables the adjusting jig and the light source to be movable integrally”, in combination with the features recited in the parent claim, which is not found taught by the prior art of record considered alone or in combination.

Claims 17-22 are allowable because they are dependent from claims 13-14 above.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 1-9 and 11 have been considered but are moot in view of the new grounds of rejection.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM  
PRIMARY EXAMINER  
December 22, 2006